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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,150	09/04/2001	Kenichiro Kami	12-006	9102
23400 7590 02/12/2007 POSZ LAW GROUP, PLC 12040 SOUTH LAKES DRIVE SUITE 101 RESTON, VA 20191			EXAMINER DOVE, TRACY MAE	
			ART UNIT	PAPER NUMBER
			1745	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/12/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

09/944,150

**Applicant(s)**

KAMI ET AL.

**Examiner**

Tracy Dove

**Art Unit**

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20,23,24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

This Office Action is in response to the communication filed on 1/31/07. Applicant's arguments have been considered, but are moot in view of the new grounds of rejection. Claims 20, 23, 24 and 26 are pending. Claims 24 and 26 are withdrawn from consideration.

#### ***Election/Restrictions***

Applicant's election without traverse of Group III in Paper No. 10 is acknowledged. Election without traverse of polymer material species "polybutylene terephthalate" and modifier material species " $\gamma$ -(methacryloxypropyl) triethoxy silane" in the response filed on 11/23/04 is acknowledged. Applicant states claims 20 and 23 read on the elected species. Claims 24 and 26 are withdrawn because they are directed toward a nonelected species.

#### ***Claim Analysis***

The claims recite the transitional phrase "composed of", which has been interpreted in the same manner as either "consisting of" or "consisting essentially of," depending on the facts of the particular case. See MPEP 2111.03.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueshima et al., US 6,335,114 in view of Tsukuda et al., EP 0 898 316.

Ueshima teaches a nonaqueous electrode secondary battery having a positive electrode, a negative electrode, a separator and a nonaqueous electrolyte (4:22-55). A porous film is integrated with the surface of the electrode plate and the porous film may be formed on the surface of both electrode plates or the porous film may be formed only on the surface of one electrode plate (7:25-44). The porous film contains a polyester resin such as polybutylene terephthalate and/or polyethylene terephthalate. The polyester resin is a heat resistant polymer that enhances the safety of the battery (8:5-43).

Ueshima does not explicitly state the polyester resin of the porous film is modified with  $\gamma$ -(methacryloxypropyl) triethoxy silane.

However, Tsukuda teaches a nonaqueous electrolyte battery comprising a porous base of at least one material selected from the group consisting of a porous film, a woven fabric and nonwoven fabric containing organic fiber and a paper. An organometallic compound is applied to the porous base (0032). The porous film is allowed to contact a solution of the organometallic compound (0046). The porous film may be a polyolefin resin or a fluorocarbon resin, but is not limited (0056). The porous film may be a polyester resin (0059;0062;0141). The organosilicon compound may be  $\gamma$ -methacryloxypropyltrimethoxysilane (0118). Tsukuda teaches applying the organosilicon compound to the porous film improves the heat resistance of the porous film (131). Note polybutylene terephthalate is a polyester resin.

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would have been motivated to use the organosilicon compound of Tsukuda to modify the surface of the polyester resin porous film of Ueshima to improve the heat resistance of the porous film of Ueshima. Tsukuda teaches

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modifying a polyester resin with  $\gamma$ -methacryloxypropyltrimethoxysilane improves the heat resistance of the polyester resin. Ueshima teaches heat resistant polymers enhance the safety of the battery. Therefore, one of skill would have been motivated to modify the polybutylene terephthalate porous film of Ueshima with the  $\gamma$ -methacryloxypropyltrimethoxysilane modifying agent of Tsukuda to improve the heat resistance of the porous film of Ueshima.

Note Tsukuda does not state a LUMO or HOMO energy value for the organosilicon compound (modifier). However, since the organosilicon compound of Tsukuda and the modifier compound of the instant claims may both be the same compound, Tsukuda inherently teaches the LUMO energy value and HOMO energy value claim limitations. Also  $\gamma$ -methacryloxypropyl trimethoxysilane is an obvious homolog of  $\gamma$ -(methacryloxypropyl) triethoxy silane.

### ***Response to Arguments***

Applicant's arguments with respect to claims 20 and 23 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

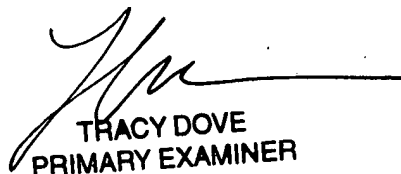
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 7, 2007



THACY DOVE  
PRIMARY EXAMINER